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ABSTRACT

The way that further education (FE) colleges in England can tailor information technology (IT) education and training programs to benefit industrial and commercial users was explored in a project undertaken by the Further Education Unit (FEU) on behalf of the Department of Trade and Industry (DTI). The FEU based the project on its network of Experimental Colleges. Many of the colleges had not carried out adequate market research on IT. Colleges had to establish and maintain contacts within local industry and cooperate in determining needs and approaches. Attention is directed to: the college image, industry's IT training needs, program fees, examples of training programs, program development, demand for the programs, staff development, and use of DTI funding. Also considered are problems in market research, administrative constraints, and continuation of the initiative. Brief notes on projects at 11 colleges are included, along with recommendations for colleges, local education agencies, and employers. (SW)

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I need IT

an industry/college interaction

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Department of Trade and Industry
Industry/Education Unit

FURTHER EDUCATION UNIT

WHO NEEDS IT?

An industry/college interaction

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Chief Education Officers,
Principals of FHE Establishments,
Secretaries of Regional and FE
Examining Bodies,
Press and other Interested
Institutions/Individuals.

Dear Sir/Madam,

WHO NEEDS IT?

The enclosed document is the result of a collaborative project between DTI and FEU based in FEU Experimental Colleges.

An important conclusion of the DTI Butcher Report, Changing Technology - Changing Skills, was the urgent need to provide retraining and updating in new technologies at technician level; for we are barely keeping pace with the present demand. The provision of adequate IT skills by FE is therefore crucial. To contribute to this provision, DTI suggested that FEU manage a pilot project based in FE colleges. On this basis, the FEU Experimental Colleges were funded to initiate additional provision in new technology. They were given the task of increasing their output of IT skills in ways which related to local industry and to the college capacity. They were supported and monitored by an FEU evaluator, and marketing seminars were arranged. The individual college initiatives are described in a separate document available on request but, as this report shows, each college was confronted by a different challenge, according to its experience and expertise in this area. This typically reflects the diversity of preparedness of the FE system. New technology pervades all aspects of industry and no single solution to the training problem is possible. Colleges exist as a resource and this project indicates how they can respond. On the basis of the findings of this report, the DTI intend to support the FE system in areas that require both skills updating and broadening.

The report also shows that if colleges market their services to local industry with a realistic pricing policy, considerable success is possible in providing updating skills in new technology. This and other recommendations are included in the document which may be regarded as a useful checklist for colleges, LEAs and employers who are involved in the important area of skills updating in IT.

Yours faithfully,

ERIC BATES
Head of Industry/Education Unit
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Chief Officer
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FOREWORD

'A successful manufacturing industry can be attributed to long-term planning and commitment, including the education and training of the workforce. Colleges must make their presence felt in their local industrial and commercial community by offering the services required for the 1980s/1990s; they must show local industries that they are awake to their needs and are ready to meet them; they must also ensure that they offer value for money, otherwise they will discover that industry will find alternative suppliers of education and training. Industry must be willing to develop new initiatives with colleges.'

The above is a not unfamiliar employer comment. This report describes a project undertaken by the FEU on behalf of the Department of Trade and Industry further to demonstrate ways in which FE colleges can more closely tailor their IT education and training provision for the benefit of industrial and commercial users. The project, having regard to the Butcher Report *Changing Technology – Changing Skills*, has concentrated on the area of retraining, including multiskilling, in information technology applications as required by industry. The benefits of the successful utilisation of new technology by industry are unquestionable. The report is in two parts: an overview of the project and the emerging issues; and a support document giving details of each of the college projects. This summary report is being widely circulated; the support document is available on direct request to the FEU.

Outcomes and Recommendations

The report demonstrates the value of Government initiatives in promoting the role of colleges as providers of new technology and other skills training for industry. The central support programme has:

- triggered colleges into a serious consideration of marketing in relation to the needs of the local employers;
- led to greater collaboration between colleges and employers;
- resulted in more colleges meeting the hitherto unsatisfied IT training needs of the industry;
- led to more employers becoming aware of the potential of colleges for meeting their training needs;
- initiated or developed local college-industry collaborative schemes which will continue long after the end of the project.

We would recommend that **colleges** should:

- undertake market research to assist employers in the identification of their training needs;
- improve the image of the college as perceived by employers;
- collaborate with employers in developing courses to meet their training needs, recognising the need for flexibility;
- develop better staff attitudes to market research, collaboration with employers and meeting employer training needs;
- provide staff development in marketing and update and extend IT skills and knowledge;
- develop costing techniques and pricing policies for industrial training programmes.

We would recommend that **LEAs and colleges** should:

- develop and contribute to a policy of provision to support the local economy;
- recognise the importance of the college to the local economy and actively promote FE and improve its image;
- allow colleges to generate income and manage it in a flexible way;
- reduce local bureaucracy so that externally funded projects can be started promptly and delivered expeditiously;
- adopt and design procedures to allow for rapid and flexible responses to industry and commercial needs and areas of rapidly changing technology;
- adopt a financial system that allows for development and depreciation costs;
- encourage regular exchange of personnel between colleges and companies.

We would recommend that **employers** should:

- analyse the benefits that can accrue from an effectively trained workforce;
- identify regularly their evolving training needs;
- recognise the need to release staff for retraining, multiskilling and updating;
- identify what local colleges can offer and consider them as significant providers of training for employees;
- collaborate with colleges to ensure that courses are relevant to their needs;
- encourage their managers to establish regular contacts with local colleges;
- encourage regular exchange of personnel between college and company.

CHAPTER 1 The Project

The Department of Trade and Industry initiative

1. In 1985 The Department of Trade and Industry commissioned the FEU to demonstrate ways by which FE colleges could better provide retraining in information technology required by industry (See Appendix 1).

2. The FEU based the project on its network of Experimental Colleges, described in Appendix 2. These are colleges sponsored by FEU to take on a general experimental role. Each college was offered £20,000 specifically to demonstrate how they could improve their IT training for local industry.

3. Not all the colleges started from the same base of expertise, and the local industrial training needs differed, but the colleges were expected to:

- consult with local industry about their IT training needs;
- improve or develop training programmes, equipment, learning materials and delivery;
- implement programmes;
- evaluate their effectiveness.

4. The colleges represented a spread from the small to the large, from town to city, from those with predominantly small companies in their area to those with large companies.

Support and monitoring of the project

5. The FEU co-ordinated and monitored the project and ensured that DTI funds were spent in support of the stated objectives. This involved visits to each of the colleges by project officers and consultants, and seminars to assist the colleges in marketing themselves and their courses to industry.

The project: getting colleges to collaborate with industry in the identification of courses to meet local training needs in IT.

CHAPTER 2 How the Colleges Tackled the Project

The initial knowledge of local industrial needs

6. All the colleges involved had some ideas about what their local industry required in IT retraining. Some had done little market research, others had been working closely with companies in the identification of what they required. A first task for some was thus to begin market research or supplement the work they had already done. As an industrialist associated with one of the colleges put it:

'Gone are the days when technical colleges can sit and wait for the customer to send their trainees in their hundreds.'

Many of the colleges had not, prior to this special funding, carried out adequate market research in IT.

Finding out what industry wants

7. The methods used by the colleges to carry out their market research involved:

- ☐ college staff visiting companies
- ☐ seminars for local employers
- ☐ reception for training officers
- ☐ exhibitions/open days
- ☐ surveys involving mailed questionnaire
- ☐ setting up a special organisation involving companies and the college in a partnership
- ☐ publicity, e.g. leaflets, advertising in local newspapers, local radio, etc. in order to attract enquiries which could be followed up.

(Further details are given in the *'Who needs IT?' Support Document.*)

8. Some colleges did not know of, or have contacts in, the range of local companies that might be interested in IT retraining. They thus had to establish contacts and so allocated some of their funding for local publicity, aimed at bringing their services to the attention of local industrialists and establishing points of contact.

9. Most of the colleges employed more than one method to obtain market information. All involved some face-to-face contact between employers and college staff in order to be fully effective. Mail shots, advertising, etc. were effective to the extent of obtaining leads but these had to be followed up.

10. With mail shots to companies the typical return was of the order of 10%. The number of replies to advertisements in the local press was very low. Local radio proved to be a problem in that information was put out during the day when the main audience was not likely to be employers.

11. Exhibitions and open days mounted in the colleges were not always effective in 'bringing in' employers. One college reported:

> 'The exhibition was certainly a failure in that employers and/or representatives were noticeable by their absence. This was despite the fact that some 400 companies and interested parties had been sent literature informing them of the exhibition...'

12. A particularly effective method of obtaining ongoing market information was already in existence at one college. In collaboration with eight employers they had already set up a local collaborative project, the prime aim of which was to identify future training needs in the area of IT and then a joint college/industry development of courses to meet these needs. Ongoing processes of consultation rather than one-off surveys have proved particularly successful in generating market information.

13. One fact that emerged from much of the initial marketing research was that employers' requirements did not always coincide with what the colleges thought they should need. For instance, one college discovered a need among senior managers for basic computer literacy short courses whereas they had been expecting more 'exotic' courses to be demanded.

Colleges have to establish and maintain contacts within local industry and involve them in determining what their needs are and how best they can be met. Establishing such contacts is not easy.

An industrial student gaining experience in the operation of a robotic arm at Blackpool and the Fylde College.

The college image

14. Some colleges had built up close relationships with employers over many years and had a clear perception of such training needs. Others had not established such relationships and employers in these situations did not have specific expectations of the colleges. When employers' needs were discussed they sometimes wanted the very courses the college was already providing.

15. This question of college image was raised frequently during the monitoring of the project. Some colleges preferred not to identify their new IT initiative too closely with the college. To attract clientele from management, one college used a country house as the location for the courses, rather than the college.

16. The college image projected by the college prospectus and its normal advertising was often seen to be jargon-loaded, poorly presented, and failed to promote either the college or its courses. It was aimed at presenting information to those who had to have its products. The college image was tarnished sometimes by the way enquiries were handled by the reception or switchboard.

17. Employers looking to a college to provide training courses for senior company staff expect to:

- speak quickly and easily to college staff who can discuss course details with them;
- receive prompt replies to their letters;
- be treated not as a day-release or full-time student but as a company delegate, e.g. being provided with adequate parking facilities, using accommodation which looks right, suitable coffee and lunch arrangements, etc.

In short, employers expect to be treated with the efficiency and style they would expect from a good private training establishment. As an industrialist at one college said:

'Colleges offering special courses must look carefully at the quality of course hand-outs, meal arrangements, selection of venue and environmental conditions. Full use must be made of the resources on the campus in order to make the maximum impact on the customer. Satisfied customers always return for further orders!'

Colleges need consciously to build up the right image with employers.

Industry's IT training needs

18. After their initial market research, the Experimental Colleges identified the following needs as being required by their local industry.

- Bedfordshire LEA: CAM, CNC and robotics;
- Blackpool and Fylde College of Further and Higher Education: robot technology;
- Cambridge College of Further Education: computer literacy and management information services;
- Harrow College of Further Education: computer literacy;
- Loughborough Technical College: a centre providing individual learning packages on new technology on demand;
- Nelson and Colne College: a mobile IT centre which could take IT courses to the workplace;
- Rumney College: courses in new technology for manufacturing and the automobile industry;

- South Cheshire College: CAD/CAM and management information services;
- South Manchester Community College: CAD/CAM and commercial applications of IT;
- Tameside College of Technology: computer literacy based on APRICOT micros;
- Worthing College of Technology: CAD/CAM.

(Further details are given in the *'Who needs IT?' Support Document*.)

19. In some cases the initial market identification of what was required was not very specific. For some colleges, a great part of the project time was spent in refining the market data and learning about marketing techniques. To aid this development, the FEU arranged a number of marketing workshops at which the principles and methods of marketing were discussed.

For some colleges, marketing is a new aspect of their work for which they need time to develop expertise and obtain meaningful results.

Programme fees

20. Employers were suspicious of training programmes for which they consider the fee per day to be low. A low fee seems to be equated with just another 'evening class' and not the special treatment they consider they need. One college charged a company £225 per day for a group of 7 to 14 participants and had to justify this 'low' fee as being because the programme was a pilot. Indeed, one college quoted a fee for an entire programme to a company which then assumed the quote referred to the fee per participant per day! The company was willing to pay this fee!

If the product is right the employer expects to pay the type of fee that private training establishments charge.

The training programmes

21. To some employers the very wide range of programmes that colleges can offer came as a surprise. For this IT initiative a wide variety of programmes and delivery methods was developed, some of a general nature and relevant to a number of companies, while others were quite specifically tailored to the needs of a single company. Some have been devised for retraining, some multiskilling and others for skill updating. Programmes have varied in length from an hour to a few days or longer. They have been offered on college premises, in-company and on a travelling bus. Some have used individual learning packages while others have involved the use of tutors (see the *'Who needs IT?' Support Document* for details).

22. The following, for instance, are some of the programmes put on during the year by just one college.

The IBM PC
A 4-hour programme for Foden Trucks, 7-hour version for ERF Trucks and Air Products Ltd.

Lotus 1-2-3
A 7-hour programme for ERF Trucks, a 12-hour version for Foden Trucks and a 13-hour version for BNFL.

Computer appreciation
A 12-hour programme for senior managers for Rolls-Royce and also ERF Trucks.

Computing for production engineers
A 27-hour programme for Rolls-Royce.

FORTRAN for CAD
A 20-hour programme for Royal Ordnance Factory.

Manufacturing resource planning
A 13-hour programme for ERF Trucks.

23. Another college, in addition to offering a range of CAD/CAM training programmes, devised a special programme on robot technology for British Aerospace. This programme lasted 60 hours and took place partly within the company and partly at the college on Monday evenings between 5.00 p.m. and either 7.00 or 8.00 p.m. The cost to the company for 14 participants was about £2,400.

24. One college based its approach to the issue of meeting local needs on the establishment of a New Technology Learning Centre. The Centre is open between 9.00 a.m. and 5.00 p.m. every weekday and 6.30 to 9.30 p.m. on Monday, Tuesday and Wednesday. Opening learning materials are used, at present in basic electricity, analogue and digital electronics and microelectronics for crafts and technicians. Students 'purchase' a number of hours training and then use a booking system to determine which hours, convenient to themselves add their employers, they will attend the centre. These are not necessarily at the same time each week. In such a system students then work at their own speed.

25. One college perceived the need to take 'the college' to the workplace and equipped a 'mobile technology unit' – a specially adapted bus, which then takes the equipment and tutors to the workplace where courses are provided. This may then lead to follow-up courses at the college.

This project was responsible for many new training programmes and delivery methods chosen to meet the needs of industry.

Programme for customers

26. This project was responsible for many new training programmes being developed and delivery methods chosen to meet the needs of industry. The levels of the courses, the status of the participants and the approaches adopted by the college all varied widely. The fundamental point however is that the programmes are the ones the customer wants and delivered in a way convenient to him or her. As one industrialist associated with a college stated:

> 'Staff must not expect in the future that all classes will be taught on the college premises. They must be prepared to present their courses where the customer requires them, which could include the workplace. Staff must be more flexible in their attitudes to timetabling. This could include a 52 weeks a year service to the customer and courses offered when and where required, e.g. 7.30 a.m. start or even on a night-shift.'

The customer's requirements are what determines the training programme and its methods of delivery.

Programme development

27. A number of methods have been used to develop the programmes.

- Existing programmes are customised to meet the employer's requirements, e.g. college staff going into a company to establish precisely what was required.
- Existing open learning materials are used, the selection reflecting the requirements of the employer (a wide selection of open learning materials have been produced over recent years, the Materials and Resources Information Service (MARIS) in Cambridge has details of some 7000).
- College teams develop new programmes to the brief obtained from the employer or employers.
- A joint college-industry team is set up to develop the brief and the programmes.

28. Most of the programme development has been using the first three methods outlined above. These, however, have involved considerable amount of interaction with employers.

Training programme development, whether it be adaptations of existing programmes or the development of new ones, must in some way involve the customer, the employer.

Demand for the programmes

29. Those colleges which had already been closely collaborating with employers before the start of this project have had a continued high demand for their programmes. Colleges which embarked on such collaboration as a relatively new venture for IT had had varied success. One, for instance, that quickly marketed its services now has too great a demand for it to cope with efficiently. It now requires further backing from the college managment if it is to capitalise fully on this demand. Other colleges made a slow start to marketing and at present do not have a high demand for programmes. The slow start in some instances was due to college/LEA bureaucracy (protracted decision-making processes involving committees), in others because of the fragmented nature of the local industry. Marketing requires resources.

Effective marketing is necessary if a high demand for courses is to materialise. Provided you have marketing, it doesn't matter from where you start; you can do something useful to meet the needs of industry.

Automatically guided vehicles and machining tools are controlled by a central computer to manufacture turbine and compressor discs.

Staff development

30. If college programmes are to remain relevant to the needs of industry dealing with IT, staff development is crucial. Many of the colleges considered they had a need for staff development in order that they could satisfactorily deal with the programmes required. This was seen as particularly necessary if the colleges were to expand their offering of courses in IT.

31. The introduction of new equipment often meant sending a number of college staff on a manufacturer's course. Thus, for instance, one college purchased a PATHCAD system and sent two members of staff on a course (the training was free but accommodation and travelling cost £180), and also sent one on another manufacturer's course (cost £375) concerned with developing the use of their existing AUTOCAD single station facility.

32. There is often a general need to raise the awareness of college staff of current technological changes which are occurring within industry and research establishments. They also need time to familiarise themselves with new software packages, new equipment, new learning packages, etc. One college gives the members of its development team three hours remission per week for this purpose. An industrialist associated with a college states:

> **'Staff must have continual updating training on new technologies and techniques used in modern industry. Opportunities must exist for selective staff to have up to six months secondment into industry.'**

College/LEA management must recognise that staff development is necessary and takes both time and resources.

The use made of the DTI funding

33. One of the advantages of the DTI funding was its great flexibility, there being no direct constraints as to how it was to be used. In most cases the use made by the colleges of the DTI funding can be classified as purchase of software, staff development and marketing. College funds and resources were also allocated to the project. Thus a breakdown of how the DTI funds were allocated by colleges cannot give a true picture of the distribution of cost factors. What it can give is an indication of what spur of extra funding was needed by colleges. In some cases, without this spur, the training programmes would probably not have occurred. In other cases, the programmes would probably have eventually occurred at a later date as resources were gradually accumulated.

34. The following table gives a rough guide to how the colleges used the DTI funds (full details are given in the *'Who needs IT?' Support Document*).

Number of colleges	Hardware/ Software	Staff Development	Market research and promotion	Other
2	100%			
5	80%	10%	10%	
2	30%	45%	25%	
1	30%		5%	65%*
1				100**

* cost of providing a director for the New Technology Centre
** cost of purchasing and equipping a bus as a mobile technology centre

35. All the colleges made some use of the DTI funding to update or extend their equipment. Thus one college bought a PUMA 560 industrial robot to complement their existing suite of CNC machine tools and so provide the 'continuous path' transfer and manipulation necessary for training at an industrial level in component assembly, inspection, welding and machine loading, as well as being a key element in their flexible machining system

development. Another college, following identification by its local companies of an increasing use of the IBM PC for CAD applications, bought three IBM CAD systems. One college found there was a need for customer training and support programme for APRICOT microcomputer and so purchased eight such computers with other associated hardware and software. Another college already had a TORCH network that would support dBASE II and WORDSTAR but only one printer. They thus used some of the funding to purchase more hardware to complement their system and so enable them to provide a more effective, and efficient, service to their customers.

36. Some of the DTI funding was used by the FEU in:

- ☐ co-ordinating and monitoring the project;
- ☐ providing a forum for the dissemination of ideas between the participating colleges;
- ☐ providing an input on marketing policies.

The evidence is that such activities were necessary.

A responsive, flexible, funded and co-ordinated initiative can spur colleges into action.

Robotic welding simulation/training at De Havilland College, Welwyn Garden City.

CHAPTER 3 Problems

Market research

37. For some colleges market research was not something they were accustomed to doing, and thus they were relatively slow in obtaining market information as they had to develop the techniques. In addition they had to overcome traditional college views about engaging in such activity. Such views largely emanated from a belief that course syllabuses/objectives only came from bodies located in London. This had the effect of delaying course development, and hence the courses, until sometimes fairly late in the project.

38. In response to the need to develop marketing techniques FEU arranged marketing seminars. These involved a discussion of basic marketing principles, hearing how industry did marketing and, perhaps most important of all, discussion of each other's approach to marketing. Thus, for example, over the duration of the project promotional materials, e.g. videos and leaflets, were developed by the colleges. This took time. In addition to the FEU seminars many of the colleges were also putting on their own marketing staff development courses. (A useful reference is Davies, P. and Scribbins, K. *Marketing Further and Higher Education*, Longman for FEU/FESC, 1985.)

39. Some of the colleges had problems because their catchment area consisted mainly of small companies.

- ☐ The colleges had first to obtain a suitable list of the companies and their activities.
- ☐ Contacting a large number of small companies with a mail shot and following up was time consuming.
- ☐ Many small companies had little interest in training.

40. A college in a 'depressed' area had the problem that many companies were more concerned with merely existing than looking to IT training to move forward.

Time is necessary for colleges to develop marketing techniques. A one-year project may not allow sufficient time for these to be developed and the results turned into courses.

Administrative constraints

41. Due to administrative constraints at some colleges there was considerable delay in their spending the DTI funds supplied to them. This was often due to the LEA-college interaction involving budgets, approval of spending plans, tenders for equipment, etc. Some colleges were not allowed to spend money quickly which had already been allocated to them.

42. In 10 of the 11 schemes the arrangements relating to the DTI funds were in the hands of the college, with any necessary LEA arrangements being its responsibility. For the one exception, FEU dealt directly with the LEA. It was the responsibility of the LEA to decide on the development plan for IT training and which colleges to involve. This arrangement led to a considerable delay in courses being developed or implemented.

The LEA-college interaction can delay the start of a project by its bureaucracy.

College inertia

43. Some colleges were slow to react to the initiative. In some cases this appeared to be owing to a key member of staff leaving the college, in other cases to resistance among staff to a change in the way they had been operating. Colleges which had already been active in meeting the training needs of local employers had no problem in reacting quickly. However, an important effect of the DTI initiative was that all the colleges by the end of the project year had responded and the change in attitudes of some of the colleges might be considered one of the major benefits.

Some colleges need to change the attitudes of staff to marketing, and the DTI initiative has assisted such a change.

Continuation of the initiative

44. This one-year project can be considered, regardless of any outcome in terms of numbers of companies or numbers of participants on courses, to have changed attitudes to marketing courses to meet the training needs of employers. However, there are some problems in this continuing beyond this year.

- The special developmental nature of the project has meant that an IT group in a college has been able to effect changes. When the 'special nature' is no longer there the initiative will be able to develop only if the senior management of the college can begin to accept it as the 'norm'.
- It takes time to develop courses and attract sufficient customers for the operation to become self-financing, and so in many cases there are likely to be problems in continuing with the high level of marketing that some have adopted when the funds have to come from the college.
- The forms of budgeting and financial management adopted by some LEAs may not allow their colleges to generate income in such a way that they can retain surpluses, carry over between financial years and operate in a flexible enough way to move towards a self-financing operation.
- IT hardware and software can quickly become out of date. The technology is changing very rapidly. Whether colleges can generate sufficient income from course fees to cover such updating costs is problematic in some area, e.g. CAD/CAM. There can be difficulty in generating sufficient income to maintain the facility. There is a need to build into the system allowances for development and depreciation.
- During the one year of the project FEU provided a forum for the dissemination of ideas and an input where knowledge was sketchy. For instance, an FEU officer regularly visited the colleges to give advice and collect information. Marketing seminars were held. This activity has ceased with the end of the project year. Without such activity, at least in the short term, it is not envisaged that all the colleges will continue at the pace they are currently developing IT provision.

Developments from this initiative require the involvement of LEA and college senior management in planning for its continuation.

APPENDIX 1 Terms of reference of the project

To increase opportunities for the FEU Experimental Colleges to:

i. consult with local industry about emerging IT retraining needs;
ii. develop curricula, associated learning materials and delivery materials on the basis of the consultations;
iii. implement the development training programmes;
iv. evaluate the effectiveness of i. and iii. above.

The FEU was to:

i. manage the DTI funding to the colleges;
ii. support and monitor the initiatives;
iii. produce a report to the DTI.

APPENDIX 2 The colleges participating in the project

1. Bedfordshire LEA
For all the other schemes the project leadership was vested with a specific college; this scheme, however, has it vested with the LEA. The colleges involved were Luton College of Higher Education, Dunstable College of Further Education and Bedford College of Higher Education. Three main areas of need were identified: computer-controlled machine tools, programmable control of processes and CAD/CAM. To avoid duplication of work Luton College of Higher Education assumed responsibility for programmable control of processes, Dunstable College of Further Education for computer-controlled machine tools and Bedford College of Higher Education for CAD/CAM.

2. Blackpool and Fylde College of Further and Higher Education
A PUMA 560 six-axes industrial robot was purchased and used as the central capital item in the development of a flexible workcell to provide fully programmable capacity in connection with automated component handling, inspection and assembly.

3. Cambridge College of Further Education
Courses in management information services, intended for office supervisory personnel, were developed, tailored to the needs of client companies.

4. Harrow College of Further Education
The college identified as its target the provision of courses in computer literacy for business people with particular reference to the small business sector and to the small office units in larger organisations.

5. Loughborough Technical College
A New Technology Learning Centre was established to supply courses on demand and at the convenience of the clients. Open learning materials are used.

6. Nelson and Colne College
A bus has been equipped and is used to take the college to the clients, courses being tailored to their needs and delivered at a convenient time and place.

7. Rumney College
A range of courses has been developed, aimed at craftsmen working in industry, to update and extend their skills. The training courses focus on changes new technology can make, from manufacturing design and machine engineering to electronics in the automobile industry.

8. South Cheshire College
In October 1984 the college, in collaboration with eight local employers, launched a local collaborative project TASC (Technological Advancement in South Cheshire). This project has identified training needs in CAD/CAM and developed courses tailored to the needs of employers.

9. South Manchester Community College
Market research and course developments have occurred in CAD/CAM, within the Directorate of Technology in the college, and on the commercial applications of information technology in the Directorate of Professional and Business Studies.

10. Tameside College of Technology
The main thrust of the college IT project was on APRICOT customer training and support since experience had indicated that such customers wanted further training.

11. Worthing College of Technology (now Northbrook College)
Following discussions with the companies, an immediate requirement was identified as being short courses to update existing trained craftsmen and technicians in CAD/CAM operations and, following staff development, courses were developed.

The *'Who needs IT?' Support Document* gives more detail on the colleges, their catchment area, and the project as they perceived it.

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Objectives

The objects for which **The Further Education Unit** (FEU) is established are to promote, encourage and develop the efficient provision of further education in the United Kingdom and for that purpose:
a) to review and evaluate the range of existing further education curricula and programmes and to identify overlap, duplication, deficiencies and inconsistencies therein;
b) to determine priorities for action to improve the provision of further education and to make recommendations as to how such improvements can be effected;
c) to carry out studies in further education and to support investigations of and experimentation in, and the development of further education curricula and to contribute to and assist in the evaluation of initiatives in further education;
d) to disseminate and publish and to assist in the dissemination and publication of information about recommendations for and experiments and developments in further education.

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